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15. (Twice amended) In an *E. coli* RecA protein or a protein having a MAW motif homologous to the *E. coli* MAW motif, a [manufactured] RecA homolog protein mutant, wherein a naturally occurring amino acid residue located within the protein's homolog of *E. coli* residues 40 to 65, shown in SEQ ID NO: 3, inclusive, but excluding the protein's homolog of *E. coli* residues 47 and 51 (SEQ ID NO: 3, residues 8 and 12), is replaced with a replacement aromatic amino acid residue.

Please add the following claims:

55. A method of generating a mutant RecA protein having enhanced DNA binding activity, comprising substituting an amino acid in the MAW motif of the wildtype RecA protein with a volumetrically larger amino acid.

56. The method of claim 55, wherein said volumetrically larger amino acid is substituted at the position homologous to *E. coli RecA* residue 43, as represented by residue 4 of SEQ ID NO: 3.

57. The method of claim 55, wherein said volumetrically larger amino acid is substituted at the position homologous to *E. coli RecA* residue 52, as represented by residue 13 of SEQ ID NO: 3.

58. The method of claim 55, wherein said volumetrically larger amino acid is substituted at the position homologous to *E. coli RecA* residue 53, as represented by residue 14 of SEQ ID NO: 3.

59. The method of claim 55, wherein said volumetrically larger amino acid is substituted at the position homologous to *E. coli RecA* residue 54, as represented by residue 15 of SEQ ID NO: 3.

60. The method of claim 55, wherein said volumetrically larger amino acid is substituted at the position homologous to *E. coli RecA* residue 55, as represented by residue 16 of SEQ ID NO: 3.

61. The method of claim 55, wherein said volumetrically larger amino acid is substituted at the position homologous to *E. coli RecA* residue 59, as represented by residue 20 of SEQ ID NO: 3.

62. The method of claim 55, wherein said volumetrically larger amino acid is selected from the group consisting of phenylalanine, lysine, tyrosine, arginine and tryptophan.

63. The method of claim 56, wherein said volumetrically larger amino acid is selected from the group consisting of phenylalanine, lysine, tyrosine, arginine and tryptophan.

64. The method of claim 57, wherein said volumetrically larger amino acid is selected from the group consisting of phenylalanine, lysine, tyrosine, arginine and tryptophan.

65. The method of claim 58, wherein said volumetrically larger amino acid is

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selected from the group consisting of phenylalanine, lysine, tyrosine, arginine and tryptophan.

66. The method of claim 59, wherein said volumetrically larger amino acid is selected from the group consisting of phenylalanine, lysine, tyrosine, arginine and tryptophan.

67. The method of claim 60, wherein said volumetrically larger amino acid is selected from the group consisting of phenylalanine, lysine, tyrosine, arginine and tryptophan.

68. The method of claim 61, wherein said volumetrically larger amino acid is selected from the group consisting of phenylalanine, lysine, tyrosine, arginine and tryptophan.

69. A method of generating a mutant RecA protein having enhanced DNA binding activity, comprising substituting a non-aromatic amino acid in the MAW motif of the wildtype RecA protein with an aromatic amino acid.

70. The method of claim 69, wherein said non-aromatic amino acid is substituted at the position homologous to *E. coli RecA* residue 40, as represented by residue 1 of SEQ ID NO: 3.

71. The method of claim 69, wherein said non-aromatic amino acid is substituted at the position homologous to *E. coli RecA* residue 42, as represented by residue 3 of SEQ ID NO: 3.

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72. The method of claim 69, wherein said non-aromatic amino acid is substituted at the position homologous to *E. coli RecA* residue 44, as represented by residue 5 of SEQ ID NO: 3.

73. The method of claim 69, wherein said non-aromatic amino acid is substituted at the position homologous to *E. coli RecA* residue 50, as represented by residue 11 of SEQ ID NO: 3.

74. The method of claim 69, wherein said non-aromatic amino acid is substituted at the position homologous to *E. coli RecA* residue 56, as represented by residue 17 of SEQ ID NO: 3.

75. The method of claim 69, wherein said aromatic amino acid is selected from the group consisting of tryptophan, tyrosine, phenylalanine, and histidine.

76. The method of claim 70, wherein said aromatic amino acid is selected from the group consisting of tryptophan, tyrosine, phenylalanine, and histidine.

77. The method of claim 71, wherein said aromatic amino acid is selected from the group consisting of tryptophan, tyrosine, phenylalanine and histidine.

78. The method of claim 72, wherein said aromatic amino acid is selected from the group consisting of phenylalanine, lysine, tyrosine, arginine and tryptophan.